

# NetScaler FIPS models

Delivering scalability and performance for enterprises with the highest security requirements

NetScaler is an application security and delivery platform that helps you scale and protect your applications using data and insights to enable peak performance. Whether you're delivering applications to your customers, your workforce, or both, NetScaler helps you do it reliably and securely.

NetScaler is built on a single operating system, so no matter which ADC form factor you choose — hardware or software or a mix — you'll manage them from one place. The operational consistency and deep observability you get with NetScaler makes it easier to apply consistent security policies and to troubleshoot faster.

NetScaler offers pooled-capacity licensing, which allows you to reallocate capacity to wherever you need it, whenever you need it, no matter where you choose to deploy your ADCs — on-premises or public cloud or both — your NetScaler subscription price will remain the same.

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## NetScaler FIPS

### What is FIPS?

The Federal Information Processing Standard Publication 140-2, or FIPS 140-2, is a US government cybersecurity standard used to evaluate and approve cryptographic modules.

### NetScaler FIPS

NetScaler offers specific physical and virtual platforms with FIPS 140-2 certification and compliance to meet the most stringent compliance mandates and security requirements.

Learn more about NetScaler FIPS 140-2 compliance by visiting the [NetScaler Trust Center](#).

NetScaler models	MPX 15120-50G FIPS	MPX 15100-50G FIPS	MPX 15080-50G FIPS
<b>Attributes</b>			
Memory	128 GB	128 GB	128 GB
Ethernet ports <sup>1</sup>	4 × 50GE QSFP28: 8 × 10GE SFP+		
Transceivers support	50GE QSFP28 Port: 50GE/100GE QSFP28: SR4; 40GE QSFP+: SR4; 25GE SFP28: SR (Adapter required); 10GE SFP+: SR, LR (Adapter required); 10GE SFP+ Port: 10GE SFP+: SR, LR		
RAID support	Yes	Yes	Yes
<b>Performance</b>			
System throughput (Gbps) [L7 throughput]	120	100	80
L7 HTTP requests/sec	4,000,000	3,900,000	3,700,000
L4 connections/sec	5,500,000	5,100,000	5,000,000
L4 concurrent sessions	65,000,000	65,000,000	60,000,000
SSL transactions/sec (2k key certificates) <sup>2</sup>	160,000	140,000	127,000
ECDHE transactions/sec	65,000	58,000	53,000
SSL throughput (Gbps)	74	70	60
Compression throughput (Gbps)	10.7	10.5	9.3
ICA Proxy/SSL VPN concurrent users	20,000	20,000	20,000
<b>Mechanical, environmental, and regulatory</b>			
Power supplies	2		
Input voltage, frequency range	100–240 VAC full range, 50–60 Hz		
Optional DC power supply	Yes		
Max Power supply	1000W		
Typical, max power consumption	364W, 487W		
Weight (lb)	39		
Height	2U		
Width	EIA 310-D, IC 60297, DIN 41494 SC48D rack width with mounting brackets		
Depth	71.1 cm (28 in)		
Operating temperature	0–45°C (32–113°F)		
Allowed relative humidity	5%–95%, Non-condensing		
Safety certifications	IEC/EN/UL/CSA/AS/NZS 62368-1 and 60950-1		
Electromagnetic emissions certifications & susceptibility standard	US (FCC (Part 15 Class A)), Canada (ICES-003), EU (CE (EN 55032/55035)), Australia/NZ (RCM), Japan (VCCI), Korea (KCC), Taiwan (BSMI), China (CCC), India (BIS), EAEU (EAC), Saudi Arabia (CITC), Brazil (Anatel), South Africa (ICASA), Mexico (NOM), Egypt (NTRA)		
Regulatory compliance	RoHS, WEEE, REACH		
NetScaler compliance regulatory model	2U1P1A		

**Notes:**

- 1 Published ethernet interfaces compliant per IEEE802.3-2002/2005/2008/2012.
- 2 Performance varies depending on ciphers deployed. Contact your NetScaler sales representative for details.
- 3 All 15000-50G series have 80plus gold rating for power supply.

NetScaler models	MPX 15060-50G FIPS	MPX 15040-50G FIPS	MPX 15030-50G FIPS
<b>Attributes</b>			
Memory	128 GB	128 GB	128 GB
Ethernet ports <sup>1</sup>	4 × 50GE QSFP28; 8 × 10GE SFP+		
Transceivers support	50GE QSFP28 Port: 50GE/100GE QSFP28: SR4; 40GE QSFP+: SR4; 25GE SFP28: SR (Adapter required); 10GE SFP+: SR, LR (Adapter required); 10GE SP+ Port: 10GE SFP+: SR, LR		
RAID support	Yes	Yes	Yes
<b>Performance</b>			
System throughput (Gbps) [L7 throughput]	60	40	30
L7 HTTP requests/sec	3,200,000	3,000,000	2,800,000
L4 connections/sec	4,600,000	4,400,000	4,200,000
L4 concurrent sessions	56,000,000	51,000,000	46,000,000
SSL transactions/sec (2k key certificates) <sup>2</sup>	110,000	66,000	42,000
ECDHE transactions/sec	45,000	28,000	20,000
SSL throughput (Gbps)	50	40	30
Compression throughput (Gbps)	8.5	7.2	7.0
ICA Proxy/SSL VPN concurrent users	20,000	20,000	20,000
<b>Mechanical, environmental, and regulatory</b>			
Power supplies	2		
Input voltage, frequency range	100–240 VAC full range, 50–60 Hz		
Optional DC power supply	Yes		
Max Power supply	1000W		
Typical, max power consumption	364W, 487W		
Weight (lb)	39		
Height	2U		
Width	EIA 310-D, IC 60297, DIN 41494 SC48D rack width with mounting brackets		
Depth	71.1 cm (28 in)		
Operating temperature	0–45°C (32–113°F)		
Allowed relative humidity	5%–95%, Non-condensing		
Safety certifications	IEC/EN/UL/CSA/AS/NZS 62368-1 and 60950-1		
Electromagnetic emissions certifications & susceptibility standard	US (FCC (Part 15 Class A)), Canada (ICES-003), EU (CE (EN 55032/55035)), Australia/NZ (RCM), Japan (VCCI), Korea (KCC), Taiwan (BSMI), China (CCC), India (BIS), EAEU (EAC), Saudi Arabia (CITC), Brazil (Anatel), South Africa (ICASA), Mexico (NOM), Egypt (NTRA)		
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NetScaler models	MPX 9195 FIPS	MPX 9180 FIPS
<b>Attributes</b>		
Memory	64 GB	64 GB
Ethernet ports <sup>1</sup>	8 × 25GE SFP28	
Transceivers support	25GE SFP28: SR; 10GE SFP+: SR, LR	
RAID support	No	No
<b>Performance</b>		
System throughput	95	80
L7 HTTP request/second	3,000,000	2,800,000
SSL transactions/second (2k key certificates) <sup>2</sup>	90,000	75,000
EDCHE transactions/second	39,000	32,000
SSL throughput (Gbps)	55	50
Compression throughput (Gbps)	12	10
ICA Proxy concurrent users	30,000	27,000
<b>Mechanical, environmental, and regulatory</b>		
Power supplies	2	
Input voltage, frequency range	100-240 VAC full range, 50-60 Hz	
Optional DC power supply	No	
Power supply	540W	
Typical, max power consumption	250W, 282W	
Weight (lb)	37	
Height	1U	
Width	EIA 310-D for 19-inch racks	
Depth	61 cm; 24 in	
Operating temperature	0–45°C (32–113°F)	
Allowed relative humidity	5%–95%, Non-condensing	
Safety certifications	IEC/EN/UL/CSA/AS/NZS 62368-1 and 60950-1	
Electromagnetic emissions certifications & susceptibility standard	US (FCC (Part 15 Class A)), Canada (ICES-003), EU (CE (EN 55032/55035)), Australia/NZ (RCM), Japan (VCCI), Korea (KCC), Taiwan (BSMI), China (CCC), India (BIS), EAEU (EAC), Saudi Arabia (CITC), Brazil (Anatel), South Africa (ICASA), Mexico (NOM), Egypt (NTRA)	
Regulatory compliance	RoHS, WEEE, REACH	
NetScaler compliance regulatory model	1U2P2A	

**Notes:**

- 1 Published ethernet interfaces compliant per IEEE802.3-2002/2005/2008/2012.
- 2 Performance varies depending on ciphers deployed. Contact your NetScaler sales representative for details.
- 3 All 9100 series have 80plus platinum rating for power supply.

NetScaler models	MPX 9160 FIPS	MPX 9140 FIPS
<b>Attributes</b>		
Memory	64 GB	64 GB
Ethernet ports <sup>1</sup>	8 × 25GE SFP28	
Transceivers support	25GE SFP28: SR; 10GE SFP+: SR, LR	
RAID support	No	No
<b>Performance</b>		
System throughput	60	40
L7 HTTP request/second	2,400,000	2,100,000
SSL transactions/second (2k key certificates) <sup>2</sup>	60,000	45,000
EDCHE transactions/second	25,000	19,000
SSL throughput (Gbps)	45	40
Compression throughput (Gbps)	9	8
ICA Proxy concurrent users	24,000	20,000
<b>Mechanical, environmental, and regulatory</b>		
Power supplies	2	
Input voltage, frequency range	100-240 VAC full range, 50-60 Hz	
Optional DC power supply	No	
Power supply	450W	
Typical, max power consumption	250W, 282W	
Weight (lb)	37	
Height	1U	
Width	EIA 310-D for 19-inch racks	
Depth	61 cm; 24 in	
Operating temperature	0–45°C (32–113°F)	
Allowed relative humidity	5%–95%, Non-condensing	
Safety certifications	IEC/EN/UL/CSA/AS/NZS 62368-1 and 60950-1	
Electromagnetic emissions certifications & susceptibility standard	US (FCC (Part 15 Class A)), Canada (ICES-003), EU (CE (EN 55032/55035)), Australia/NZ (RCM), Japan (VCCI), Korea (KCC), Taiwan (BSMI), China (CCC), India (BIS), EAEU (EAC), Saudi Arabia (CITC), Brazil (Anatel), South Africa (ICASA), Mexico (NOM), Egypt (NTRA)	
Regulatory compliance	RoHS, WEEE, REACH	
NetScaler compliance regulatory model	1U2P2A	

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NetScaler models	MPX 9130 FIPS	MPX 9120 FIPS	MPX 9110 FIPS
<b>Attributes</b>			
Memory	64 GB	64 GB	64 GB
Ethernet ports <sup>1</sup>	8 × 25GE SFP28		
Transceivers support	25GE SFP28: SR; 10GE SFP+: SR, LR		
RAID support	No	No	No
<b>Performance</b>			
System throughput	30	20	10
L7 HTTP request/second	1,800,000	1,600,000	1,400,000
SSL transactions/second (2k key certificates) <sup>2</sup>	35,000	25,000	15,000
EDCHE transactions/second	15,000	11,000	6,900
SSL throughput (Gbps)	30	20	10
Compression throughput (Gbps)	7	6	5
ICA Proxy concurrent users	17,000	14,000	12,000
<b>Mechanical, environmental, and regulatory</b>			
Power supplies	2		
Input voltage, frequency range	100–240 VAC full range, 50–60 Hz		
Optional DC power supply	no		
Power supply	450W		
Typical, max power consumption	250W, 282W		
Weight (lb)	37		
Height	1U		
Width	EIA 310-D for 19-inch racks		
Depth	61 cm; 24 in		
Operating temperature	0–45°C (32–113°F)		
Allowed relative humidity	5%–95%, Non-condensing		
Safety certifications	IEC/EN/UL/CSA/AS/NZS 62368-1 and 60950-1		
Electromagnetic emissions certifications & susceptibility standard	US (FCC (Part 15 Class A)), Canada (ICES-003), EU (CE (EN 55032/55035)), Australia/NZ (RCM), Japan (VCCI), Korea (KCC), Taiwan (BSMI), China (CCC), India (BIS), EAEU (EAC), Saudi Arabia (CITC), Brazil (Anatel), South Africa (ICASA), Mexico (NOM), Egypt (NTRA)		
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NetScaler models	MPX 8920 FIPS	MPX 8910 FIPS	MPX 8905 FIPS
<b>Attributes</b>			
Memory	32 GB	32 GB	32 GB
Ethernet ports <sup>1</sup>	4 × 10GE SFP+; 6x		
Transceivers support	10GE SFP+: SR, LR		
RAID support	No	No	No
<b>Performance</b>			
System throughput (Gbps) [L7 throughput]	20	10	5
L7 HTTP requests/sec	1,700,000	1,400,000	1,000,000
L4 connections/sec	1,200,000	800,000	600,000
L4 concurrent sessions	15,000,000	14,000,000	13,000,000
SSL transactions/sec (2k key certificates) <sup>2</sup>	22,000	13,000	8,000
ECDHE transactions/sec	10,000	6,000	4,000
SSL throughput (Gbps)	19	10	5
Compression throughput (Gbps)	4	3.5	2.5
ICA Proxy/SSL VPN concurrent users	10,000	10,000	10,000
Included instances, maximum instances (on SDX models)	N/A	N/A	N/A
<b>Mechanical, environmental, and regulatory</b>			
Power supplies	1 (2nd optional)		
Input voltage, frequency range	100-127/200-240 V 50-60 Hz		
Optional DC power supply	Yes		
Power supply	450W		
Typical, max power consumption	225W, 275W		
Weight (lb)	25		
Height	1U		
Width	EIA 310-D for 19 inch racks		
Depth	61 cm (24 in)		
Operating temperature	0-45°C (32-113°F)		
Allowed relative humidity	5%-95%, Non-condensing		
Safety certifications	IEC/EN/UL/CSA/AS/NZS 62368-1 and 60950-1		
Electromagnetic emissions certifications & susceptibility standard	US (FCC (Part 15 Class A)), Canada (ICES-003), EU (CE (EN 55032/55035)), Australia/NZ (RCM), Japan (VCCI), Korea (KCC), Taiwan (BSMI), China (CCC), India (BIS), EAEU (EAC), Saudi Arabia (CITC), Brazil (Anatel), South Africa (ICASA), Mexico (NOM), Egypt (NTRA)		
Regulatory compliance	RoHS, WEEE, REACH		
NetScaler compliance regulatory model	1U1P1A		

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- 3 All 8900 series have 80plus gold rating for power supply.

## Technical details

### NetScaler gateway

- Provides consolidation of secure remote access infrastructure with one URL
- Provides SAML 2.0 federated identity to provide single sign-on (SSO) across all applications, whether in a data center or in a cloud
- One URL to access any application
- AlwaysON allows auto-reconnect of SSL VPN session when users are moving between networks
- AlwaysON VPN allows to establish a VPN connection before Windows logon that help admin manage the laptop remotely
- Integration with StoreFront allows importing UI changes from StoreFront to Gateway portal and vice versa
- Gateway Insight for monitoring and troubleshooting all Gateway traffic for issues like authentication, EPA, single sign-on failures, etc.
- Factor authentication for all applications
- Stateless RDP proxy
- Support for Linux (Ubuntu 18/020)
- Support for Mac (OS X 10.14 and above)
- Support for Windows 11, 10, 8.1, 8
- Support for iOS 12 or later. Compatible with iPhone, iPad, and iPod touch.
- Support for Android 7.0 and later

### Secure access

- Citrix Virtual Apps and Desktops and Citrix Endpoint Management, formerly XenMobile, integration
- Device certificate scanning
- Single sign-on using NTLM/Kerberos/SAML, and more
- SmartAccess: Adaptive application and action control enforced on Citrix Virtual Apps and Desktops servers
- SmartControl: Adaptive application and action control enforced on NetScaler gateway, thereby providing centralized policy management and security at the edge
- Integrated NetScaler gateway SSL VPN
- For ADC versions after 11.1, NetScaler Standard edition includes (500) Universal licenses, Enterprise or Advanced editions include (1000) Universal licenses, and there are no Universal license requirements with Platinum or Premium editions
- Endpoint analysis of user device
- SAML 2.0 and n Factor; passwords for single sign on to applications running behind NetScaler gateway
- AAA traffic management
- SAML 2.0 and NTLMv1/2 support for configuring ADC with single sign-on (SSO)
- Support for Active Directory, LDAP, OCSP, etc.

### L4-7 traffic management

#### Layer 4 load balancing (LB)

- Protocols supported: TCP, UDP, FTP, HTTP, HTTPS, DNS (TCP and UDP), SIP (over UDP), RTSP, SQL, RDP, IS-IS, SMPP
- Algorithms: Round Robin, Least Packets, Least Bandwidth, Least Connections, Response Time, Hashing (URL, Domain, Source IP, Destination IP, and CustomID), SNMP-provided metric, Server Application State Protocol (SASP)
- Session persistence: Source IP, cookie, server, group, SSL session, SIP CALLID, Token-based, SESSIONID
- Session protocols: TCP, UDP, SSL\_TCP, Multi-path TCP, SPDY
- Server monitoring: Ping, TCP, URL, ECV, scriptable health checks, Dynamic Server Response Time
- Link load balancing

#### Layer 7 content switching

- Policies: URL, URL Query, URL Wildcard, Domain, Source/Destination IP, HTTP Header, Custom, HTTP and TCP Payload Values, UDP
- Switch requests based on protocol of incoming packets

#### Database load balancing

- Support for Microsoft SQL Server and MySQL
- Switching algorithms include SQL query parameters such as user and database names and command parameters
- Token-based load balancing provides advanced configuration for persistence and fault-tolerant deployments

#### Clustering

- Scale-Out by clustering up to 32 NetScaler appliances into single system image and up to 6.4 Tbps throughput
- Configuration coordinator node for centralized management and synchronization
- Traffic distribution mechanisms include: Equal Cost Multiple Path (ECMP), Link-sets, and Cluster Link Aggregation Group (CLAG)
- Available on NetScaler MPX, SDX, and VPX
- Modules may be configured on all nodes in a cluster or using "spotted VIPs," in which they are added only to a select subset of nodes

#### e-based policy enforcement

- Trigger ADC policies based upon connections per second, packets per second, or bandwidth used
- Source or destination-based upon header or payload information



**Global server load balancing (GSLB)**

- Algorithms: site health, geographic proximity, network proximity, connections, bandwidth, AGE SSL, VPN users
- Site health checking on status, connection load, packet rate, SNMP-provided metrics

**Surge protection and priority queuing**

- Adaptive rate control for TCP connections and HTTP requests
- Prioritized transaction dispatch for critical application requests

**Carrier-grade network address translation**

- Support for: Full-cone NAT, Deterministic NAT, Endpoint-Independent Mapping and Filtering, Hairpinning
- Application Layer Gateways: FTP, TFTP, ICMP, SIP, RTSP, PPTP, GRE

**Subscriber-aware traffic steering**

- Policy control interface: Gx, RADIUS

**Application acceleration****TCP optimization**

- Multiplexing, buffering, connection keep-alive, windows scaling, selective acknowledgement, fast ramp, TCP Westwood
- AppCompress
- Gzip-based compression for HTTP traffic AppCache3
- Caching for static and dynamic application content
- HTTP GET and POST method support
- Policies defined based upon HTTP header and body values

**Application security****DoS attack defense**

- Continue service to legitimate users while protecting against attacks such as SYN Flood, HTTP DoS, and Ping of Death
- ICMP and UDP rate control

**Content rewriting and response control**

- Policy-based bidirectional rewriting of HTTP header and payload elements
- Policy-based redirection of incoming requests
- Body URL rewrite
- Responder module
- Custom responses and redirects
- Policy-based routing
- Network-aware policies

**SSL encryption**

- Supports Thales nShield and SafeNet HSM integration

**DNSSEC**

- DNS proxy
- Authoritative DNS
- DNS signing

**Packet filtering**

- Layer 3 and 4 Access Control Lists (ACL)
- Network Address Translation (NAT)
- IPv4/IPv6 Network Address Translation (NAT)

**Bot mitigation**

Integrated bot mitigation identifies automated threats using:

- IP address lists
- Dynamic IP reputation
- Known bot signatures
- Device fingerprinting
- Behavioral analysis

Once bots are identified traffic can be mitigated via:

- Dropped
- Rate limited
- Redirected to another resources
- Challenged with CAPTCHA

### API gateway

NetScaler has enterprise-grade API gateway functionality integrated to protect APIs from attack and abuse

- Discover unknown and shadow APIs

Secure API communications via NetScaler's authentication, authorization, auditing and rate limiting, content routing, rewriting, bot management and WAF functionality

### NetScaler web app firewall with hybrid security models

- Positive security model protects against: buffer overflow, CGI- BIN parameter manipulation, form/ hidden field manipulation, forceful browsing, cookie or session poisoning, broken ACLs, cross-site scripting (XSS), command injection, SQL injection, error triggering sensitive information leak, insecure use of cryptography, server misconfiguration, back doors and debug options, rate-based policy enforcement, well known platform vulnerabilities, zero-day exploits, cross site request forgery (CSRF), credit card and other sensitive data leakage prevention
- Negative security model with automatically updated signatures to protect against L7 and HTTP application vulnerabilities
- Integrates with third-party scanning tools
- Common event format (CEF) logs
- XML security: XML denial of service (xDoS)
- XML SQL injection and cross site scripting, XML message validation, format checks, WS-I basic profile compliance, XML, XPath injection attachment check, xQuery Injection protection
- WSDL scan prevention
- Attachment checks
- URL transformation
- Cookie proxy and encryption
- SOAP array attack protection

### IP reputation service

- Enhanced service that provides a continuously updated list of malicious IP addresses in near realtime

### Support for Citrix Endpoint Management MDMs

- Front end optimization scalable to over 100,000 concurrent users
- NetScaler Gateway connector for Exchange ActiveSync provides a device level authorization service
- Application level policy controlled SSL VPN tunneling for mobile clients

### Network integration

- Static routes, monitored static routes, weighted static routes
- OSPF, RIP1/2, BGP2
- VLAN 802.1Q
- Link Aggregation 802.3ad
- Stateful IPv6 to IPv4 network address translation and DNS64
- Static and stateless network address translation from IPv4 to IPv6

### High availability

- Active/Passive
- Active/Active
- VRRP
- ECMP
- Connection mirroring

### Simplified installation and management

#### User interface

- Graphical application visualizer
- Secure web-based GUI
- CLI, Telnet, SSH, console
- Real-time performance dashboard
- LB, GSLB application firewall and configuration wizards for monitoring
- Citrix Virtual Apps configuration wizards

#### Policy management

- AppExpert Visual Policy Builder
- Policy extensibility via HTTP service callouts
- AppExpert templates
- AppExpert Visualizers

#### Command center

- Centralized configuration and management of over 200 NetScaler appliances

**NetScaler Application Delivery Management**

- NetScaler ADM is a software solution enabling traffic visibility; it includes HDX insight and Web Insight and is based on AppFlow
- HDX insight parses ICA sessions to provide troubleshooting, network analysis, and end-to-end performance for Citrix Virtual Apps and Desktops sessions. Historical data included in Premium Edition.
- Web insight monitors real-time web application traffic and assists capacity planning and helps ensure SLAs
- AppFlow standards-based
- NetFlow/PFIX (Internet Protocol Information Export) solution
- Supported by leading performance monitoring and management vendors
- Provides transaction level visibility for HTTP, SSL, TCP, and SSL/TCP flows

**Action analytics**

- Aggregates real-time traffic statistics and enables their use in setting dynamic policies
- Charting and analysis utilities using HDX Insight

**Third-party management support**

- SNMPv1, SNMPv2, and SNMPv3: NetScaler MIB and
- MIB-II support
- Terraform infrastructure as code support
- Ansible automation support
- XML/SOAP API for automated application-driven configuration

**Real-time consolidated logging**

- Offloads logging from application server to a central location